NAME

tenma – CUTEr TENMIN test driver

SYNOPSIS

tenma

DESCRIPTION

The *tenma* main program test drives TENMIN on SIF problems from the CUTEr distribution.

The TENMIN package is intended for problems where the cost of storing one n by n matrix (where n is the number of variables), and factoring it at each iteration, is acceptable. The software allows the user to choose between a tensor method for unconstrained optimization, and an analogous standard method based upon a quadratic model. The tensor method bases each iteration upon a specially constructed fourth-order model of the objective function that is not significantly more expensive to form, store, or solve than the standard quadratic model.

TENMIN is available via anonymous ftp from ftp.cs.colorado.edu, in the directory pub/cs/distribs/tensor. Any questions about this software should be addressed to eskow@cs.colorado.edu.

USAGE

Copy the TENMIN source code, distributed in the file tensrd.f, into a new file named tenmin.f. In tenmin.f, remove or comment out the BLAS subroutines DCOPY, DDOT, and DSCAL. In our version of the TENMIN source, this corresponds to deleting or commenting out lines 2675 to 2814 at the end of the file. (CUTEr also uses the BLAS subroutines DCOPY, DDOT, and DSCAL. They are contained in the CUTEr Fortran file named linpac.f To avoid multiply defined subroutines when TENMIN is linked with the CUTEr tools, the duplicate BLAS subroutines must be removed from TENMIN.)

Compile (but do not link) tenmin.f. The resulting object file tenmin.o should be placed in your directory $MYCUTER/*precision*/bin/.

NOTE

If no TENMIN.SPC file is present in the current directory, the default version is copied from $CUTER/common/src/pkg/tenmin/. Default specifications are as follows:

1000	ILIM,	maximum number of iterations
0.00001	GRADTL,	relative gradient stopping tolerance
2	IAGFLG,	gradient availability & checking flag
2	IAHFLG,	Hessian availability & checking flag
1.0	FSCALE,	typical value of objective function
1.0	TYPX,	typical value of the problem variables
1	METHOD,	method used (0=Newton, 1=tensor)
15	NDIGIT,	# accurate digits in function values
1	MSG,	output specifier

The reader is referred to the paper quoted below and the code itself if he or she wishes to modify these parameters.

ENVIRONMENT

CUTER

Parent directory for CUTEr

MYCUTER
Home directory of the installed CUTEr distribution.

AUTHORS

I. Bongartz, A.R. Conn, N.I.M. Gould, D. Orban and Ph.L. Toint

SEE ALSO

CUTEr (and SifDec): A Constrained and Unconstrained Testing Environment, revisited,
N.I.M. Gould, D. Orban and Ph.L. Toint,
ACM TOMS, **29**:4, pp.373-394, 2003.

CUTE: Constrained and Unconstrained Testing Environment, I. Bongartz, A.R. Conn, N.I.M. Gould and Ph.L. Toint, TOMS, **21**:1, pp.123-160, 1995.

Tensor methods for unconstrained optimization using second derivatives, R.B. Schnabel and T.-T. Chow, SIAM Journal on Optimization, vol. 1(3), pp. 293-315, 1991.

sdten(1), ten(1).